Problem Set #1

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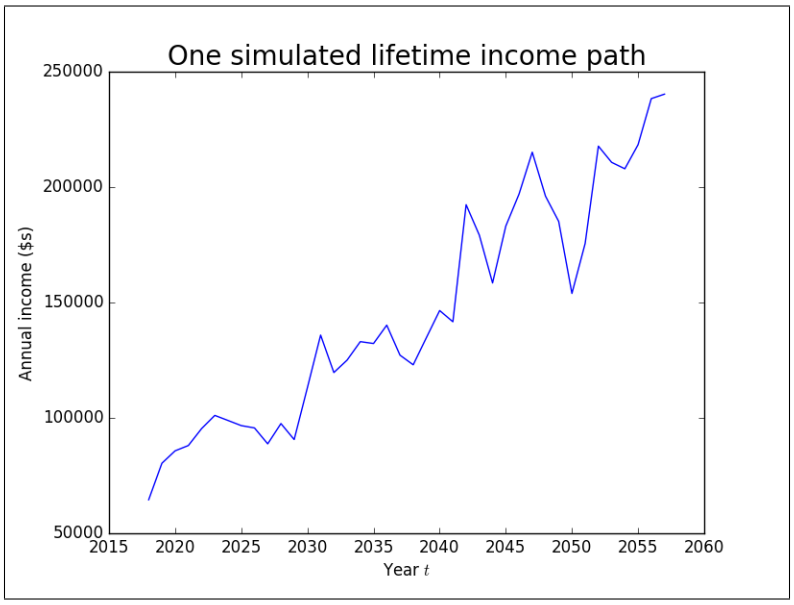
Problem 1 Simuating income.

Part (a).

Plot one of the lifetime income paths. Make sure your axes are correctly labeled and your plot has a title.

Figure 1: One simulated lifetime income path

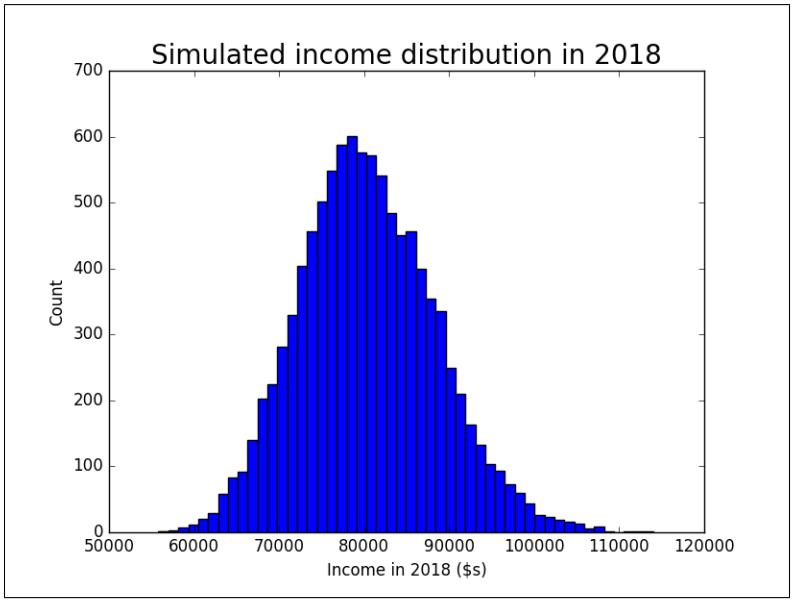


Part (b).

Question: What percent of your class will earn more than $100,000 in the first year out of the program? What percent of the class will earn less than $70,000? Is the distribution normally distributed (i.e., symmetric and bell curved)?

Answer: In the first period, according to my simulation, 1.21 % of students get more than $100k and 9.21 % of students get less than $70k. The distribution resembles a normal distribution, perhaps slighly skewed right.

Figure 2: Simulated income distribution in 2018

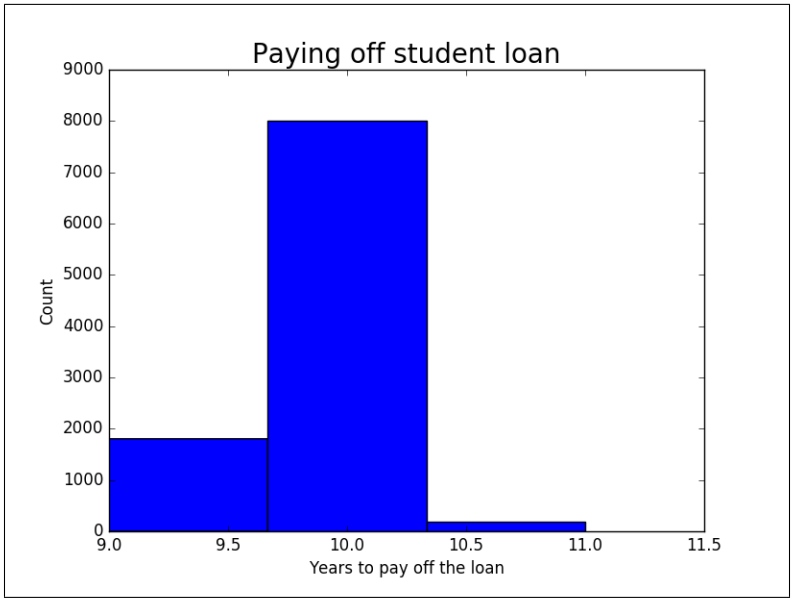


Part (c).

Question: In what percent of the simulations are you able to pay off the loan in 10 years (on or before t = 2027)?

Answer: According to my simulation, 98.09 % of students pay off $95k loan in 10 years.

Figure 3: Paying off student loan



Part (d).

Question: In what percent of the simulations are you able to pay off the loan in 10 years (on or before t = 2027)?

Answer: With a new beginning income and a new standard deviation, my simulation suggests that 99.53 %of students pay off $95k loan in 10 years.

Figure 4: Paying off student loan, with new parameters